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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,652	12/27/2001	Brendon Stead	45784-43	7966

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EXAMINER

MILLER, PATRICK L

ART UNIT	PAPER NUMBER
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2837

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/033,652	Applicant(s) STEAD ET AL.	
	Examiner Patrick Miller	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25,27,29,30 and 32-40 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-25,27,29,30 and 32-40 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 27 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03012004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.
 - Applicants have amended claim 9 to recite the voice coil being coupled to the cylinder.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
 - Applicants have amended claim 9 so that the first and second surrounds are above the voice coil; however, claim 12 cites the voice coil is between the first and second surrounds.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 5-9, 11, 13-16, 18, 19, 21-24, 27, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Ozawa (JP 11-150791).

- Ozawa discloses a transducer, comprising: a cylinder located within a housing where the cylinder has an upper edge (fig. 1, #4 and #22); a diaphragm coupled to the upper edge of the cylinder (fig. 1, #3); a voice coil coupled to the cylinder (fig. 1, #21); a first surround having a first inner edge and a first outer edge, where the first inner edge is coupled to the cylinder and the first outer edge is coupled to the housing and having only one roll between the first inner and outer edges (fig. 1, #1RE); and a second surround having a second inner edge and a second outer edge, where the second inner edge is coupled to the cylinder and the second outer edge is coupled to the housing and having only one roll between the second inner and outer edges (fig. 1, #2RD), and where the first and second inner edges of the first and second surrounds are coupled to the cylinder between the diaphragm and the voice coil (fig. 1, #1RE and #2RD are coupled to #4 between #3 and #21).
- With respect to claim 2, the first and second surrounds are substantially similar in shape (fig. 1, #1RE and #2RD).
- With respect to claim 5, the first and second surrounds face up (fig. 1, #1RE and #2RD).

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- With respect to claim 6, the surrounds face down (fig. 1, defining the face as the concave portions).
- With respect to claim 7, the first and second surrounds face away from each other (fig. 5, #11RE and #12RD).
- With respect to claim 8, the surrounds face each other (fig. 5, defining the face as the concave portions).
- With respect to claims 9, 11, and 13, Ozawa discloses a transducer comprising: a cylinder within a housing and the cylinder having an upper end and a lower end (fig. 1, #4 and #22); a first surround having only one roll between the cylinder and the housing, where the first surround is coupled to the cylinder and the housing (fig. 1, #1RE); a second surround having only one roll between the cylinder and the housing, where the second surround is at a predetermined distance from the first surround and is coupled to the cylinder and the housing (fig. 1, #2RD), and a voice coil coupled to the lower end of the cylinder so that the first and second surrounds are above the voice coil (fig. 1, #21 below #1RE and #2RD).
- With respect to claim 14, a diaphragm is coupled to an upper edge of the cylinder (fig. 1, #3 to #4).
- With respect to claim 15, since the diaphragm is dome-shaped, the cylinder has a circular cross-section ([0011]).
- With respect to claim 16, the first and second surrounds have half-circle rolls (fig. 1, #1RE and #2RD).

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- With respect to claims 18 and 19, the first and second surrounds are substantially similar and symmetrical (fig. 1, #1RE and #2RD).
- With respect to claim 21, the first roll faces down and the second roll faces up (fig. 5, if the concave side of the surrounds is defined as the front).
- With respect to claim 22, the first and second surrounds face up (fig. 1, defining the face portion as the protruding portion of the roll).
- With respect to claim 23, the first and second rolls face down (fig. 1, defining the face portion as the concave portion).
- With respect to claim 24, the first roll faces up and the second roll faces down (fig. 5, defining the face to be the protruding portion of the roll).
- With respect to claim 27, the half-rolls are interpreted to be sinusoidal (fig. 1).
- With respect to claim 29, the cylinder is made of a substantially rigid material ([0003]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 4, 10, 20, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Ozawa as applied to claims 1 and 9 above, and further in view of Peng (6,526,151).

- Ozawa does not disclose the first surround's diameter being greater than the second surround, the diaphragms are non-symmetrical, and a pair of wires extending out of the housing between the first and second surrounds.

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- Peng discloses a loudspeaker with first and second surrounds, where the diameter of the first surround is greater than the diameter of the second surround (fig. 3, #40 and #15), and a pair of wires extending out of the housing between the first and second surrounds (fig. 3, “wire” not labeled but visible). The motivation to have a first surround with a greater diameter than the second surround is to “fit” the housing structure and to provide a more stable connection between the first surround and the housing. Furthermore, modifying the first surround so that it has a larger diameter than the second surround would make the surrounds non-symmetrical (claim 20).
 - Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to make the first diaphragm of Ozawa have a larger diameter than the second diaphragm, thus making the first diaphragm extend across the “lip” in the housing of Ozawa (fig. 1, #1RE would extend across the “lip” of #22), and providing the advantage of ensuring a more stable and reliable connection to the housing, which would provide the advantage of a higher stability speaker and reduced distortion, as taught by Peng.
5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozawa as applied to claim 9 above, and further in view of White (3,997,023).
- Ozawa does not disclose the surrounds having a substantially parabolic cross-sectional shaped roll.
 - White discloses a surround that has a parabolic cross-section (Fig. 3). White’s motivation for using a surround that has a parabolic cross-section is because this configuration provides the arched portion of the surround with relatively steep sidewalls,

as compared with a semi-circular arch. This provides the advantage of offering a high resistance to shear stresses and, if effective in suppressing or attenuating undesirable circumferential or peripheral waves (Col. 2, lines 12-26). Further, although White only discloses one surround, a person of ordinary skill in the art would realize that both diaphragms in the transducer of Ozawa could be configured with parabolic surrounds.

- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the transducer of Ozawa by implementing parabolic cross-section surrounds, thereby providing the advantage of suppressing or attenuating undesirable circumferential or peripheral waves, as taught by White.

6. Claims 30, 32-34, and 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozawa (JP 11-150791) in view of Sato et al (5,848,1743).

- With respect to claim 30, Ozawa discloses a dual surround transducer assembly, comprising: a first surround having only one roll and connecting a cylinder with a housing (fig. 1, #1RE); a second surround having only one roll and connecting the cylinder with the housing (fig. 1, #2RD); the first and second surrounds are spaced apart from each other (fig. 1, #1RE and #2RD are separated); and a voice coil coupled to the cylinder, where the second surround is between the first surround and the voice coil (fig. 1, #21; #2RD between #1RE and #21).
- Ozawa does not disclose the first and second surrounds made from different materials.
- Sato et al disclose a loudspeaker with two surrounds, and the surrounds are made from different materials (col. 22, lines 10-24). The motivation to make the surrounds from

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different materials is to provide the advantage of implementing different damping characteristics for the specific speaker application or environment.

- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the surrounds of Ozawa so that they are made from different materials, thereby providing the advantage of implementing different damping characteristics, as taught by Sato et al.
- With respect to claim 32, Ozawa discloses a diaphragm coupled to an upper edge of the cylinder (fig. 1, #3 to #4).
- With respect to claim 33, the surrounds are substantially similar (fig. 1, #1RE and #2RD).
- With respect to claim 34, the surrounds have a half-circle cross-sectional shape roll (fig. 1).
- With respect to claim 36, the half-circle rolls are interpreted to be sinusoidal (fig. 1).
- With respect to claim 37, the two surrounds face up (fig. 1, face is defined as the protruding portion of the roll).
- With respect to claim 38, the two surrounds face down (fig. 1, face is defined as the concave portion of the roll).
- With respect to claim 39, the two surrounds face each other (fig. 5, face defined as the concave portion of the roll).
- With respect to claim 40, the two surrounds face away from each other (fig. 5, face defined as the protruding portion of the roll).

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7. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozawa and Sato et al as applied to claim 30 above, and further in view of White (3,997,023).

- Ozawa and Sato et al do not disclose the surrounds having a substantially parabolic cross-sectional shaped roll.
- White discloses a surround that has a parabolic cross-section (Fig. 3). White's motivation for using a surround that has a parabolic cross-section is because this configuration provides the arched portion of the surround with relatively steep sidewalls, as compared with a semi-circular arch. This provides the advantage of offering a high resistance to shear stresses and, if effective in suppressing or attenuating undesirable circumferential or peripheral waves (Col. 2, lines 12-26). Further, although White only discloses one surround, a person of ordinary skill in the art would realize that both diaphragms in the transducer of Ozawa could be configured with parabolic surrounds.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the transducer of Ozawa and Sato et al by implementing parabolic cross-section surrounds, thereby providing the advantage of suppressing or attenuating undesirable circumferential or peripheral waves, as taught by White.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Miller whose telephone number is 571-272-2070. The examiner can normally be reached on M-F, 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2800 ext 41. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick Miller
Examiner
Art Unit 2837

pm
April 26, 2004


KIMBERLY LOCKETT
PRIMARY EXAMINER